AMENDMENTS TO THE CLAIMS

1-34 (Canceled).

35. (currently mended) A method of characterizing a large group of biological cells, comprising:

a) separating the cells so that the cells of the large group are preponderantly separated from each other;

b) characterizing each cell according to an aspect of the vibrational spectrum each cell, ~~The method of claim 34,~~ wherein the ~~infrared absorption~~ vibrational spectrum of each cell is analyzed for indications that the cell is in a cell division stage, and;

c) statistically analyzing the characteristics of the groups cells.

36. (Original) The method of claim 35, wherein the results of the statistical analysis is the percentage of the cells of the group which are in a cell division stage.

37. (currently mended) The method of claim 36, wherein the indication that a cell is in a cell division stage is the presence of a signal indicating DNA in the ~~infrared absorption spectra~~ vibrational spectrum .

38. (Original) The method of claim 37, wherein the separated cells are located according to the fluorescence of the cells.

39. (new) The method of claim 35, wherein the vibrational spectrum of each cell is the recording of an infrared absorption spectrum for each cell.

40 . (new) The method of claim 39, wherein the results of the statistical analysis is the percentage of the cells of the group which are in a cell division stage.

41. (new) The method of claim 40, wherein the indication that a cell is in a cell division stage is the presence of a signal indicating DNA in the infrared absorption spectra.

42. (new) The method of claim 41, wherein the separated cells are located according to the fluorescence of the cells.

43. (new) The method of claim 35, wherein the vibrational spectrum of each cell is the recording of a Raman spectrum for each cell.

44 . (new) The method of claim 43, wherein the results of the statistical analysis is the percentage of the cells of the group which are in a cell division stage.

45. (new) The method of claim 44, wherein the indication that a cell is in a cell division stage is the presence of a signal indicating DNA in the infrared absorption spectra.

46. (new) The method of claim 45, wherein the separated cells are located according to the fluorescence of the cells.

47. (new) A method, comprising:

locating a very large number of cells with a location means;

illuminating the cells with light;

recording light emitted from the cells; and

characterizing the vibrational spectrum of the light emitted from the cells located by the location means, wherein the vibrational spectrum is analyzed for indications that the cell is in a cell division stage.

48. (new) The method of claim 47, wherein the vibrational spectrum characterization means comprises a means for generating and for transmitting infrared light through each cell.

49. (new) The method of claim 48, wherein the means for generating infrared light comprises a first laser having a first defined infrared wavelength.

50. (new) The method of claim 49, wherein the first laser is pulsed when the location means locates a first cell in a position to be characterized by the first laser.

51. (new) The method of claim 49, wherein the first defined wavelength comprises a wavelength wherein DNA is highly absorbing.

52. (new) The method of claim 51, wherein a second laser having a second infrared wavelength is pulsed to characterize the cell, wherein the second infrared wavelength comprises a wavelength wherein RNA is highly absorbing.

53. (new) The method of claim 48, wherein the means for generating infrared light comprises a

third laser having a broad band infrared wavelength range.

54. (new) The method of claim 53, wherein the third laser is pulsed when the location means locates a first cell in a position to be characterized by the laser.

55. (new) The method of claim 54, wherein the broad band infrared wavelength range includes a wavelength wherein DNA is highly absorbing.

56. (new) The method of claim 55, wherein the broad band infrared wavelength range includes a wavelength wherein RNA is highly absorbing.

57. (new) The method of claim 56, wherein the infrared absorption spectrum of each cell is recorded.

58 (new) The method of claim 57, wherein the infrared absorption spectrum of each cell is analyzed for indications that the cell is in a cell division stage.

59. (new) The method of claim 58, wherein the percentage of the cells in the cell division stage is calculated.

60. (new) The method of claim 59, wherein the indication that a cell is in a cell division stage is the presence of a signal indicating DNA in the infrared absorption spectra.

61. (new) The method of claim 47, wherein the location means is a fluorescence activated sorting method

62. (new) The method of claim 47, wherein the vibrational spectrum characterization means comprises a means for illuminating the cells, and a means for analyzing the Raman scattered light emitted from the cells.

63. (new) The method of claim 62, wherein the means for illuminating the cells comprises a first laser having a first defined wavelength.

64. (new) The method of claim 63, wherein the first laser is pulsed when the location means locates a first cell in a position to be illuminated by the first laser.

65. (new) The method of claim 64, wherein the Raman spectrum of each cell is recorded.

66. (new) The method of claim 65, wherein the Raman spectrum of each cell is analyzed for indications that the cell is in a cell division stage.

67. (new) The method of claim 66, wherein the indication that a cell is in a cell division stage is the presence of a signal indicating DNA in the Raman spectra.